SERIES ARC DETECTION

Abstract

A frequency harmonic identifier for detecting series arcs on a power line includes a frequency analyzer for providing the harmonic content of a sensed current signal and a decision logic for comparing a tested signal to at least one reference signal band. The reference signal band or bands may represent a variety of common loads and if the tested signal does not match any of the sets of reference signal bands, then the logic determines the tested signal to be a series arc signal. The frequency harmonic identifier may be provided within a circuit interrupter and may issue a trip signal if the tested signal is determined to be a series arc signal. A method for detecting series arcs includes sensing current on a power line and providing a sensed current signal as an input signal to a frequency harmonic identifier, performing a Fast Fourier Transform on the input signal for providing a tested signal, accessing a storage area storing at least one reference signal band, comparing the tested signal to the at least one reference signal band and determining if the tested signal is a series arc signal through comparison and, if the test signal is a series arc

signal, sending a trip signal. A storage medium may also be encoded with machine-readable computer program code for detecting series arcs on a power line, wherein the storage medium includes instructions for causing a computer to implement the method.